



## Anthropogenic climate change and allergen exposure: The role of plant biology

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### Abstract:

Accumulation of anthropogenic gases, particularly CO<sub>2</sub>, is likely to have 2 fundamental effects on plant biology. The first is an indirect effect through Earth's increasing average surface temperatures, with subsequent effects on other aspects of climate, such as rainfall and extreme weather events. The second is a direct effect caused by CO<sub>2</sub>-induced stimulation of photosynthesis and plant growth. Both effects are likely to alter a number of fundamental aspects of plant biology and human health, including aerobiology and allergic diseases, respectively. This review highlights the current and projected effect of increasing CO<sub>2</sub> and climate change in the context of plants and allergen exposure, emphasizing direct effects on plant physiologic parameters (eg, pollen production) and indirect effects (eg, fungal sporulation) related to diverse biotic and abiotic interactions. Overall, the review assumes that future global mitigation efforts will be limited and suggests a number of key research areas that will assist in adapting to the ongoing challenges to public health associated with increased allergen exposure. (J Allergy Clin Immunol 2012; 129: 27-32.)

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### Resource Description

#### Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Meteorological Factors, Meteorological Factors, Precipitation, Temperature

**Air Pollution:** Allergens, Interaction with Temperature, Ozone, Particulate Matter

**Extreme Weather Event:** Flooding

#### Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

#### Geographic Location:

resource focuses on specific location

Global or Unspecified

#### Health Impact:



specification of health effect or disease related to climate change exposure

Respiratory Effect

**Respiratory Effect:** Upper Respiratory Allergy

**Population of Concern:** A focus of content

**Population of Concern:** 

populations at particular risk or vulnerability to climate change impacts

Children

**Resource Type:** 

format or standard characteristic of resource

Review

**Timescale:** 

time period studied

Time Scale Unspecified